

GreenMaP – Green multi-action products for the sustainable conservation of historic porous building stones

Summary

Different porous stones (PS) were used as building materials of historical and monumental constructions that nowadays are important memories of the past. However, several degradation phenomena are erasing the tangible testimonies of their artistic, historic, social and cultural value. Conservation of PS involves a panoply of actions and products with different functions such as consolidants, hydrophobic products, biocides, cleaning agents (e.g. solvent, water), among others. Therefore, current conservation practices have poor environmental sustainability due to the diversity of actions and products needed; because products often have toxic compounds; and because their performance depends on PS chemical/mineralogical characteristics. Although environmental concerns have been addressed for a long time in various construction sectors, green strategies or methodologies for assessing environmental impacts of practices and products are still limited in conservation field.

The project offers a unique approach in the conservation field by proposing an innovative multi-action product (MAP) based in green chemistry and a thoughtful working plan involving its technical and environmental performance assessment. The objective is to

develop and validate a MAP appropriate for silicate and carbonate based PS.

This innovative concept will be achieved by following new strategies combining green chemistry routes and nanotechnology.



Figure 1. Example of a degraded statue in a porous carbonate stone.

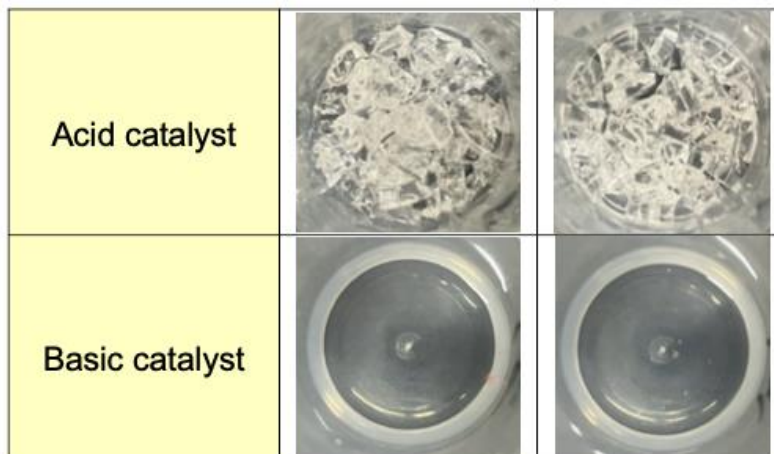


Figure 2. Example of formulations after drying (Xerogel).

Project Reference

PTDC/ECI-EGC/2519/2020

Leading Institution

IST-ID – Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (Portugal)

Partners

IST-ID: CQE – Center for Structural Chemistry (Portugal), IPS – Instituto Politécnico de Setúbal (Portugal), UNL – Universidade Nova de Lisboa (Portugal)

CERIS Principal Investigator

Ana Paula Ferreira Pinto
(anapinto@ist.utl.pt)

CERIS Research Team

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244 958.00€

CERIS

196 619.68€ (IST-ID funding shared by CQE and CERIS)

Project Website

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